

**WHAT IS CLAIMED IS:**

1                    1.    An isolated CLASP-7 polynucleotide, wherein said polynucleotide  
2    is

3                    (a) a polynucleotide that has the sequence of SEQ ID NO:1 or  
4                    (b) a polynucleotide that hybridizes under stringent hybridization  
5    conditions to (a) and encodes a polypeptide having the sequence of SEQ ID NO:2 or an  
6    allelic variant or homologue of a polypeptide having the sequence of SEQ ID NO:2; or

7                    (c) a polynucleotide that hybridizes under stringent hybridization  
8    conditions to (a) and encodes a polypeptide with at 25 contiguous residues of the  
9    polypeptide of SEQ ID NO:2; or

10                   (d) a polynucleotide that hybridizes under stringent hybridization  
11    conditions to (a) and has at least 12 contiguous bases identical to or exactly  
12    complementary to SEQ ID NO:1.

1                    2.    The polynucleotide of claim 1 that encodes a polypeptide having  
2    the full-length sequence of SEQ ID NO:2.

1                    3.    The isolated polynucleotide of claim 1, comprising the cDNA  
2    coding sequence AVC-PD23 (ATCC accession number \_\_\_\_\_) or AVC-PD24 (ATCC  
3    accession number \_\_\_\_\_).

1                    4.    An isolated CLASP-7 polynucleotide comprising a nucleotide  
2    sequence that has at least 90% percent identity to SEQ ID NO:1.

1                    5.    An isolated polypeptide comprising a nucleotide sequence that has  
2    at least 90% sequence identity to SEQ ID NO:2 and is immunologically crossreactive  
3    with SEQ ID NO:2 or shares a biological function with native CLASP-7.

1                    6.    A vector comprising the polynucleotide of claim 1.

1                    7.    An expression vector comprising the polynucleotide of claim 1 in  
2    which the nucleotide sequence of the polynucleotide is operatively linked with a  
3    regulatory sequence that controls expression of the polynucleotide in a host cell.

1                    8.    A host cell comprising the polynucleotide of claim 1, or progeny of  
2    the cell.

- 1 9. A host cell comprising the polynucleotide of claim 1, wherein the  
2 nucleotide sequence of the polynucleotide is operatively linked with a regulatory  
3 sequence that controls expression of the polynucleotide in a host cell, or progeny of the  
4 cell.
- 1 10. The host cell of claim 8 which is a eukaryote.
- 1 11. The polynucleotide of claim 1 that is an antisense polynucleotide  
2 less than about 200 bases in length.
- 1 12. An antisense oligonucleotide complementary to a messenger RNA  
2 comprising SEQ ID NO:1 and encoding CLASP-7, wherein the oligonucleotide inhibits  
3 the expression of CLASP-7.
- 1 13. An isolated DNA that encodes a CLASP-7 protein as shown in  
2 SEQ ID NO:2.
- 1 14. The polynucleotide of claim 1 that is RNA.
- 1 15. A method for producing a polypeptide comprising:  
2 (a) culturing the host cell of claim 8 under conditions such that the  
3 polypeptide is expressed; and  
4 (b) recovering the polypeptide from the cultured host cell or its cultured  
5 medium.
- 1 16. An isolated polypeptide encoded by a polynucleotide of claim 1.
- 1 17. The polypeptide of claim 16 that has the amino acid sequence of  
2 SEQ ID NO:2 or a fragment thereof.
- 1 18. The isolated polypeptide of claim 16, wherein the polypeptide is  
2 cell-membrane associated.
- 1 19. The isolated polypeptide of claim 16, wherein the polypeptide is  
2 soluble.
- 1 20. The polypeptide of claim 17, wherein the polypeptide is fused with  
2 a heterologous polypeptide.

- 1 21. An isolated CLASP-7 protein having the sequence as shown in  
2 SEQ ID NO:2.
- 1 22. A protein comprising the sequence as shown in SEQ. ID. NO:1 and  
2 variants thereof that are at least 95% identical to SEQ ID. NO:2 and specifically binds  
3 spectrin.
- 1 23. An isolated antibody that specifically binds to a polypeptide having  
2 the amino acid sequence as shown in SEQ ID NO:2, or a binding fragment thereof.
- 1 24. The antibody of claim 23, that is monoclonal.
- 1 25. A hybridoma capable of secreting the antibody of claim 24.
- 1 26. A method for identifying a compound or agent that binds a  
2 CLASP-7 polypeptide comprising:  
3 i) contacting a CLASP-7 polypeptide of claim 17 with the compound or  
4 agent under conditions which allow binding of the compound to the CLASP-7  
5 polypeptide to form a complex and  
6 ii) detecting the presence of the complex.
- 1 27. A method of detecting a CLASP-7 polypeptide in a sample,  
2 comprising:  
3 (a) contacting the sample with an antibody or binding fragment of claim 24  
4 and (b) determining whether a complex has been formed between the antibody and with  
5 CLASP-7 polypeptide.
- 1 28. A method of detecting a CLASP-7 polypeptide in a sample,  
2 comprising:  
3 (a) contacting the sample with a polynucleotide of claim 1 or a  
4 polynucleotide that comprises a sequence of at least 12 nucleotides and is complementary  
5 to a contiguous sequence of the polynucleotide of section (a) of claim 1, and (b)  
6 determining whether a hybridization complex has been formed.
- 1 29. A method of detecting a CLASP-7 nucleotide in a sample,  
2 comprising:

(a) using a polynucleotide that comprises a sequence of at least 12 nucleotides and is complementary to a contiguous sequence of the polynucleotide of section (a) of claim 1, in an amplification process; and  
(b) determining whether a specific amplification product has been formed.

30. A pharmaceutical composition comprising a polynucleotide of claim 1, a polypeptide of claim 16, or an antibody of claim 23 and a pharmaceutically acceptable carrier.

31. A method of inhibiting an immune response in a cell comprising:  
(a) interfering with the expression of a CLASP-7 gene in the cell;  
(b) interfering with the ability of a CLASP-7 protein to bind to another cell;  
(c) interfering with the ability of a CLASP-7 protein to bind to another protein.

32. The method of claim 31, wherein the cell is a T cell or a B cell.

33. The method of claim 31 comprising contacting the cell with an effective amount of a polypeptide which comprises the amino acid sequence of SEQ ID NO:2 or a fragment thereof.

34. A method of inhibiting an immune response in a subject, comprising administering to the subject a therapeutically effective amount of an antibody which specifically binds a polypeptide having the sequence of SEQ ID NO:2.

35. A method of preventing or treating a CLASP-7-mediated disease comprising administering to a subject in need thereof a therapeutically effective amount of a pharmaceutical composition of claim 30.

36. The method claim 35, wherein the CLASP-7-mediated disease is an autoimmune disease.

37. A method of treating an autoimmune disease in a subject caused or exacerbated by increased activity of T<sub>H</sub>1 cells consisting of administering a therapeutically effective amount of a pharmaceutical composition of claim 30 to the subject.